

CLAIMS

I claim:

1. A ribbon cartridge for a thermal transfer printer configured to provide a retractable feed for a donor ribbon, the ribbon cartridge comprising:
 - a housing;
 - a roll of donor ribbon wound on a core within the housing;
 - a clutch operatively coupled to the core;
 - a resilient structure coupled to the clutch and to the cartridge housing such that the release of energy stored in the resilient structure by advance of the donor ribbon produces retraction of ribbon slack if the donor ribbon is released or backfed.
2. The ribbon cartridge of claim 1 wherein the clutch is formed of an elastomeric material.
3. The ribbon cartridge of claim 1 wherein the resilient structure is formed of an elastomeric material.
4. The ribbon cartridge of claim 1 wherein the clutch and the resilient structure are different portions of a common structure formed of an elastomeric material.
5. The ribbon cartridge of claim 1 wherein the clutch further comprises a wire spring.
6. The ribbon cartridge of claim 1 wherein the resilient structure further comprises a wire spring.
7. The ribbon cartridge of claim 1 wherein the clutch and the resilient structure comprise different diameters of a multi-diametral spring.

8. A ribbon cartridge for a thermal transfer printer configured to provide a retractable feed for a donor ribbon, the cartridge comprising:

a housing;

a roll of donor ribbon wound on a multidiametral core within the housing;

a clutch coupled to the core; and

a resilient structure coupled to the clutch and to the cartridge housing such that the release of energy stored in the resilient structure by advance of the donor ribbon produces retraction of ribbon slack into the cartridge housing if the donor ribbon is released or backfed.

9. The ribbon cartridge of claim 8, wherein the clutch is formed of elastomeric material.

10. The ribbon cartridge of claim 8 wherein the resilient structure is formed of elastomeric material.

11. The ribbon cartridge of claim 8 wherein the clutch and the resilient structure are different portions of a common structure formed of elastomeric material.

12. The ribbon cartridge of claim 8 wherein the clutch further comprises a wire spring.

13. The ribbon cartridge of claim 8 wherein the resilient structure further comprises a wire spring.

14. The ribbon cartridge of claim 8 wherein the clutch and the resilient structure are different portions of a common spring.

15. A ribbon roll with self-contained clutching and slack take-up capability, comprising:

a hollow core configured to receive a roll of ribbon;

a clutch having a friction component configured to induce frictional engagement with said core, at least one end of the clutch adapted to be externally constrained; and

a resilient component located between said friction component and said at least one end of the clutch.

16. The ribbon roll defined by claim 15 wherein said friction component and said resilient component are parts of a common member.

17. The ribbon roll defined by claim 16 wherein said common member comprises an elastomer.

18. The ribbon roll defined by claim 17 wherein said elastomer is flat and comprises a center section configured to engage said core with an interference fit.

19. The ribbon roll defined by claim 17 wherein said elastomer is flat and comprises an end section adapted to fit an external key to provide said constraint.

20. The ribbon roll defined by claim 16 wherein said common member comprises a spiral spring.

21. The ribbon roll defined by claim 20 wherein said spring has a center section which engages said core with an interference fit when relaxed.

22. The ribbon roll defined by claim 21 wherein said spring comprises an end section of smaller diameter than said center section, said end section configured to be captured by said external constraint.

23. A thermal transfer ribbon cartridge with self-contained clutching and slack take-up capability, comprising:

a cartridge housing;

a hollow core located within said housing and configured to receive a roll of ribbon;

a clutch located within said core and having a friction component configured to induce frictional engagement with said core, at least one end of the clutch adapted to be externally constrained;

a resilient component located between said frictional component and said at least one end of the clutch; and

a restraining structure external to said core, configured to receive and constrain said at least one end of the clutch.

24. The ribbon cartridge defined by claim 23 wherein said restraining structure comprises part of said cartridge housing.

25. The ribbon cartridge defined by claim 23 further including a support independent of said core and clutch, said support configured to support the weight of said core and roll.

26. The ribbon cartridge defined by claim 25 wherein said support comprises part of said restraining structure.

27. The ribbon cartridge defined by claim 23 wherein said friction component and said resilient component are parts of a common member.

28. The ribbon cartridge defined by claim 27 wherein said common member comprises an elastomer.

29. The ribbon cartridge defined by claim 28 wherein said elastomer is flat and comprises a center section configured to engage said core with an interference fit.

30. The ribbon cartridge defined by claim 28 wherein said elastomer is flat and comprises an end section adapted to fit an external key to provide said constraint.

31. The ribbon cartridge defined by claim 27 wherein said common member comprises a spiral spring.

32. The ribbon cartridge defined by claim 31 wherein said spring has a center section which engages said core with an interference fit when relaxed.

33. The ribbon cartridge defined by claim 32 wherein said spring comprises an end section of smaller diameter than said center section which is configured to be captured by said external constraint.

34. The cartridge defined by claim 23 wherein said roll is adapted to be rotatably supported on an externally mounted shaft.

35. The cartridge defined by claim 27 wherein said roll is adapted to be rotatably supported on an externally mounted shaft, and wherein said common member has a longitudinal opening configured to receive said shaft.

36. A printer assembly comprising:

a thermal transfer printer having a print head, a print platen, a ribbon cartridge locator, defining a feed path for ribbon from said ribbon cartridge locator to said print head;

a ribbon cartridge adapted to be received by said ribbon cartridge locator and having self-contained clutching and slack take-up capability, the ribbon cartridge further including:

a hollow core configured to receive a roll of ribbon;

a clutch having a friction component configured to induce frictional engagement with said core, at least one end of the clutch being adapted to be externally constrained;

a resilient component located between said friction component and said at least one end of the clutch; and

a restraining structure external to said core configured to receive and constrain said at least one end of said clutch.

37. The assembly defined by claim 36 further including a housing wherein said restraining structure comprises part of said housing.

38. The assembly defined by claim 36 including a support independent of said core and clutch, the support configured to support the weight of said core and roll.

39. The assembly defined by claim 38 wherein said support comprises part of said restraining structure.

40. The assembly defined by claim 36 wherein said friction component and said resilient component are parts of a common member.

41. The assembly defined by claim 40 wherein said common member comprises an elastomer.

42. The assembly defined by claim 41 wherein said elastomer is flat and comprises a center section configured to engage said core with an interference fit.

43. The assembly defined by claim 41 wherein said elastomer is flat and comprises an end section adapted to fit an external key to provide said constraint.

44. The assembly defined by claim 40 wherein said common member comprises a spiral spring.

45. The assembly defined by claim 44 wherein said spring has a center section configured to engage said core with an interference fit when relaxed.

46. The assembly defined by claim 45 wherein said spring comprises an end section of smaller diameter than said center section which is configured to be captured by said external constraint.

47. The assembly defined by claim 36 wherein said roll of ribbon is adapted to be rotatably supported on a shaft.

48. The assembly defined by claim 40 wherein said roll of ribbon is adapted to be rotatably supported on a shaft, and wherein said common member has a longitudinal opening configured to receive said shaft.